

## CLAIMS

We claim:

1. An ink jet ink composition comprising:
  - (a) an aqueous carrier medium,
  - (b) a colorant,
  - (c) a UV curable resin dilutable in said aqueous carrier medium, and
  - (d) a photoinitiator.
2. The composition of claim 1 wherein said UV curable resin is a urethane acrylate resin.
3. The composition of claim 2 wherein said urethane resin is an aliphatic urethane acrylate resin.
4. The composition of claim 2 wherein said urethane acrylate resin is water dilutable.
5. The composition of claim 1 wherein said UV curable resin is a polyester acrylate resin.
6. The composition of claim 1 wherein said UV curable resin is an epoxy resin.
7. The composition of claim 1 wherein said UV curable resin is physically drying before UV curing.
8. The composition of claim 1 wherein said UV curable resin is about 5 wt. % to about 80 wt. % of said ink jet ink composition on a non-aqueous carrier medium basis.
9. The composition of claim 8 wherein said UV curable resin is about 10 wt. % to about 60 wt. % of said ink jet ink composition on a non-aqueous carrier medium basis.
10. The composition of claim 8 wherein said aqueous carrier medium

comprises at least 50 wt. % of said ink jet ink composition.

11. The composition of claim 10 wherein said aqueous carrier medium comprises:

- (a) about 30 to 100 wt. % water, and
- (b) 0 to about 70 wt. % of at least one co-solvent.

12. The composition of claim 11 wherein said co-solvent is selected from ethylene glycol, propylene glycol, diethylene glycols, glycerine, dipropylene glycols, polyethylene glycols, polypropylene glycols, amides, ethers, carboxylic acids, esters, alcohols, organosulfides, organosulfoxides, sulfones, alcohol derivatives, carbitol, butyl carbitol, cellusolve, ether derivatives, amino alcohols, ketones, N-methyl-pyrrolidinone, N-ethylpyrrolidinone, 2-pyrrolidone, cyclohexylpyrrolidone, hydroxyethers, amides, sulfoxides, lactones, imidazole, or mixtures thereof.

13. The composition of claim 1 wherein said colorant is selected from at least one pigment, at least one dye or mixtures thereof.

14. The composition of claim 2 wherein said photoinitiator is about 1 wt. % to about 8 wt. % of said ink jet ink composition on a non-aqueous carrier medium basis.

15. A method of forming a waterfast image on an image receiving substrate comprising:

- (a) applying in imagewise fashion to said image receiving substrate by ink jetting an ink jet ink comprising:
  - (1) an aqueous carrier medium,
  - (2) a colorant,
  - (3) a UV curable resin dilutable in said aqueous carrier medium, and
  - (4) a photoinitiator; and
- (b) thereafter exposing said image receiving substrate to a UV source.

16. The method of claim 15 wherein said UV curable resin is a urethane acrylate resin.

17. The method of claim 16 wherein said urethane acrylate resin is an aliphatic urethane acrylate resin.

5 18. The method of claim 16 wherein said urethane acrylate resin is water dilutable.

19. The method of claim 15 wherein said UV curable resin is a polyester acrylate resin.

10 20. The method of claim 15 wherein said UV curable resin is an epoxy resin.

21. The method of claim 15 wherein said UV curable resin is physically drying before UV curing.

15 22. The method of claim 15 wherein said UV curable resin is about 5 wt. % to about 80 wt. % of said ink jet ink composition on a non-aqueous carrier medium basis.

23. The method of claim 22 wherein said UV curable resin is about 10 wt. % to about 60 wt. % of said ink composition on a non-aqueous carrier medium basis.

20 24. The method of claim 22 wherein said aqueous carrier medium comprises at least 50 wt. % of said ink jet ink composition.

25. The method of claim 24 wherein said aqueous carrier medium comprises:

- (a) about 30 to 100 wt. % water, and
- (b) 0 to about 70 wt. % of at least one co-solvent.

25 26. The method of claim 16 wherein said photoinitiator is about 1 wt. % to about 8 wt. % of said ink jet ink composition on a non-aqueous carrier medium basis.

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27. A method to improve the waterfastness of an ink jet image on a substrate, said method comprising adding to an ink jet ink formulation an effective amount of a UV curable resin dilutable in said ink jet ink formulation and an effective amount of a photoinitiator, ink jetting an image on said substrate, and thereafter exposing said substrate to a UV source.

28. The method of claim 27 wherein said UV curable resin is a urethane acrylate resin.

29. The method of claim 28 wherein said urethane acrylate resin is an aliphatic urethane acrylate resin.

30. The method of claim 28 wherein said urethane acrylate resin is water dilutable.

31. The method of claim 27 wherein said UV curable resin is a polyester acrylate resin.

32. The method of claim 27 wherein said UV curable resin is an epoxy resin.

33. The method of claim 27 wherein said UV curable resin is physically drying before UV curing.

34. The method of claim 27 wherein said UV curable resin is about 5 wt. % to about 80 wt. % of said ink jet ink formulation on a non-aqueous carrier medium basis.

35. The method of claim 34 wherein said UV curable resin is about 10 wt. % to about 60 wt. % of said ink jet ink formulation on a non-aqueous carrier medium basis.

36. The method of claim 28 wherein said aqueous carrier medium comprises at least 50 wt. % of said ink jet ink formulation.

37. The method of claim 36 wherein said aqueous carrier medium comprises:

- (a) about 30 to 100 wt. % water, and
- (b) 0 to about 70 wt. % of at least one co-solvent.

38. The method of claim 28 wherein said photoinitiator is about 1 wt. % to about 8 wt. % of said ink jet ink formulation on a non-aqueous carrier medium  
5 basis.

39. An article produced by applying an ink jet ink composition of claim 1 to a substrate, and curing the image formed on said substrate by exposing said substrate to a UV source.

40. An ink jet printer cartridge containing an ink jet ink composition of  
10 claim 1.

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